

What Is Claimed Is:

1. An elongated cathode target comprising titanium and aluminum in the range of 1 to 99 weight percent titanium and 1 to 99 weight percent aluminum.
2. The cathode target according to claim 1, wherein the weight percent titanium is from 10 to 95 percent.
3. The cathode target according to claim 2, further comprising up to 50 weight percent of silicon, magnesium, transition metals, or mixtures thereof.
4. The cathode target according to claim 2, wherein the weight percent of aluminum is from 5 to 85 weight percent, and the weight percent of titanium is from 15 to 95 weight percent of the target.
5. The cathode target according to claim 1, wherein the weight percent of aluminum is in the range of 35 to 37 weight percent of the target.
6. The cathode target according to claim 1, wherein the cathode is produced by plasma spray, casting, or HIP.
7. A method for depositing coatings comprising titanium and aluminum, comprising:
  - a. maintaining a substrate in an evacuated chamber;
  - b. maintaining an atmosphere comprising a gas selected from the group consisting of inert gas, nitrogen, oxygen, and mixtures thereof; and
  - c. sputtering an elongated cathode target comprising 1 to 99 weight percent titanium and 1 to 99 weight percent aluminum, to deposit a titanium and aluminum containing coating on a surface of the substrate.
8. The method according to claim 7, wherein the substrate is a visible light transmitting substrate.
9. The method according to claim 7, wherein the substrate is glass or plastic.

10. The method according to claim 9, wherein the atmosphere comprises at least one of an inert gas, oxygen, nitrogen, and combinations thereof, and the cathode target further comprises silicon, and the sputtering comprises sputtering a coating that is up to 40 weight percent silicon.

11. The method according to claim 7, wherein the target comprises 20 to 70 weight percent aluminum and 30 to 80 weight percent titanium.

12. The method according to claim 11, wherein the target comprises 5 to 20 weight percent of another metal containing material.

13. The method according to claim 11, wherein the target comprises 5 to 20 weight percent of silicon.

14. The method according to claim 7, wherein the atmosphere comprises nitrogen, and the coating comprises materials selected from titanium, aluminum, titanium-nitride, aluminum-nitride, (titanium-aluminum)nitride, and combinations thereof.

15. The method according to claim 7, wherein the atmosphere comprises nitrogen and oxygen, and the coating comprises materials selected from titanium, aluminum, titanium oxide, aluminum oxide, (titanium-aluminum)oxide, titanium nitride, aluminum nitride, (titanium-aluminum)nitride, titanium oxynitride, aluminum oxynitride, (titanium-aluminum) oxynitride, and combinations thereof.

16. The method according to claim 7, wherein the atmosphere comprises oxygen and inert gas, and the coating comprises materials selected from titanium, aluminum, titanium oxide, aluminum oxide, (titanium-aluminum)oxide, and combinations thereof.

17. The method according to claim 11, wherein the atmosphere consists essentially of inert gas and the coating consists essentially of titanium and aluminum.

18. The method according to claim 11, wherein the atmosphere comprises oxygen and the coating comprises titanium oxide and aluminum-oxide.

19. The method according to claim 11, wherein the atmosphere comprises oxygen and nitrogen and the coating comprises titanium and aluminum-silicon-transition metal oxynitride.

20. A coating article, comprising:  
a substrate;  
a functional coating deposited over at least a portion of the substrate; and  
a Ti-Al coating comprising titanium and aluminum deposited over at least a portion of the functional coating.

21. The article of claim 20, wherein the functional coating comprises at least one dielectric layer and at least one infrared reflective layer.

22. The article of claim 20, wherein the functional coating comprises conductive metal nitrides and alloys of nickel and chrome.

23. The article of claim 18, wherein the infrared reflective metal is selected from the group consisting of silver, gold, copper, steel, and combinations thereof.

24. The article of claim 20, wherein the Ti-Al coating comprises oxides and/or nitrides and/or oxynitrides and/or metal films comprising titanium and aluminum.

25. The article of claim 20, wherein the aluminum is present in the range of 20 to 60 atomic percent aluminum.

26. The article of claim 25, wherein the aluminum is present in the range of 40 to 60 atomic percent aluminum.

27. A coated article, comprising:  
a substrate;  
a functional coating deposited over at least a portion of the substrate, wherein the functional coating comprises at least one dielectric layer, at least one infrared reflective layer deposited over the dielectric layer, and at least one primer film deposited over at least a portion of the infrared reflective layer; and

a Ti-Al layer comprising titanium and aluminum incorporated into the functional coating.

28. The article of claim 27, wherein the Ti-Al layer is the primer film.

29. The article of claim 27, wherein the functional coating comprises at least one dielectric layer and at least one infrared reflective layer.

30. The article of claim 29, wherein the infrared reflective metal is selected from the group consisting of silver, gold, copper, steel, and combinations thereof.

31. The article of claim 27, wherein the Ti-Al layer comprises oxides and/or nitrides and/or oxynitrides and/or metal films comprising titanium and aluminum.

32. The article of claim 27, wherein the aluminum is present in the range of 20 to 60 atomic percent aluminum.

33. The article of claim 32, wherein the aluminum is present in the range of 40 to 60 atomic percent aluminum.

34. The article of claim 27, wherein the functional coating comprises conductive metal nitrides and alloys of nickel and chrome.